15. The method of claim 13 wherein the phenotype is heat shock resistance.

16. The method of claim 13 wherein the phenotype is starvation resistance.

17. The method of claim 13 wherein the phenotype is paraquat resistance.

18. The method of claim 13 wherein the phenotype is caffeine resistance.

19. The method of claim 13 further comprising d) evaluating the mitotic divisional capacity of the treated eukaryotic cell.

20. The method of claim 13 wherein the eukaryotic cell is a yeast cell.

21. The method of claim 13 wherein the eukaryotic cell is a genetically-altered eukaryotic cell which has a different capacity for mitotic division relative to a reference eukaryotic cell.

22. The method of claim 19 wherein the step d) of evaluating comprises: (i) calculating the number of divisions of the treated eukaryotic cell, and (ii) comparing the number of divisions in (i) with the average number of divisions for the eukaryotic cell in the absence of the agent to be tested.

23. The method of claim 20 wherein the phenotype is a function of growth to higher saturation density than the eukaryotic cell provided in (a).

24. The method of claim 20 wherein the phenotype is heat shock resistance.

25. The method of claim 20 wherein the phenotype is starvation resistance.

26. The method of claim 20 wherein the phenotype is paraquat resistance.

27. The method of claim 20 wherein the phenotype is caffeine resistance.

28. The method of claim 13 wherein the treated eukaryotic cell is labeled on the cell surface, and the step c) of evaluating comprises detecting the labeled, treated eukaryotic cell.

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29. The method of claim 13 wherein the treated eukaryotic cell is cultured for a period of time greater than time sufficient for the first capacity of cell division.

30. The method of claim 28 wherein the treated eukaryotic cell is fluorescently labeled.

31. The method of claim 16 wherein the step c) of evaluating comprises maintaining the treated eukaryotic cell under starvation conditions. --